REMARKS

The present application is directed to a method for applying a reactive epoxy-containing coating to a substrate by subjecting the substrate to a pulsed plasma discharge having a duty cycle of between 1:500 and 1:1000 in the presence of a compound of formula (I) or (IA), where R^1 and R^{1a} is a hydrocarbyl group optionally substituted by a halo group or a heterocyclic group; R^2 is straight or branched alkylene chain optionally substituted by a halo group; and Y is oxygen or a bond. Surfaces obtained in this way may subsequently be derivatized or adhered to other surfaces.

Claims 1-20 were pending prior to the mailing of the Non-Final Office Action on January 12, 2005. Claims 8 and 13-20 are withdrawn from consideration is being directed to an non-elected group. Claim 5 and 9-11 are canceled without prejudice. Claims 1, 7 and 12 are currently amended. Claim 21 is new. Following entry of this amendment Claims 1-4, 6-9, 12-21 will be pending. No new matter is added and support for the amendments is found throughout the specification and in the original claims.

Informalities-Drawing

In the Non-Final Office Action mailed on January 12, 2005, the Examiner objected to the specification for containing Figures and Schemes. Schemes 1-3 have been re-numbered as Figures 10-12, respectively, and corresponding amendments to the specification with regard to the re-numbered Figures have been made. Replacement drawings are also enclosed. Accordingly, applicants request withdrawal of the Examiner's objection.

Claim rejections 35 U.S.C. §112, second paragraph

In the Office Action, the Examiner rejected Claims 1-12 under 35 U.S.C §112, second paragraph, as being indefinite. Applicants respectfully submit that the amendments to the claims overcome the rejection.

In particular, the Examiner rejected Claim 1 stating that the metes and bounds of R^1, R^{1a} and R^2 were ambiguous. Claim 1 has been amended to define R^1 or R^{1a} as a hydrocarbyl

group, optionally substituted by a halo group, or a heterocyclic group, and R^2 as a straight or branched alkylene chain, optionally substituted by a halo group. Accordingly, Applicants respectfully submit the metes and bounds of Claim 1 are now definite.

The Examiner requested information on certain terms contained in Claims 9-11. These claims have been cancelled without prejudice. Accordingly, the rejection of these claims is now moot.

The Examiner rejected Claim 12 on the basis that the term "agent" lacked antecedent basis. Claim 12 has been amended herein to replace the word "agent" with the word "reagent", which is recited in the preamble of Claim 12.

Accordingly, applicants respectfully submit the amended claims are definite and request withdrawal of the Examiner's rejection.

Claim rejections 35 U.S.C. §112, First paragraph

In the Office Action, the Examiner rejected Claims 1-12 under 35 U.S.C §112, second paragraph, as lacking enablement. Applicants respectfully submit that the amendments to the claims overcome the rejection.

Claim 1 has been amended to specify that R^1 or R^{1a} is a hydrocarbyl group, optionally substituted by a halo group, or a heterocyclic group. Support for this amendment can be found on page 4, lines 9-11.

Accordingly, applicants respectfully submit that the amended claims are enabled and request withdrawal of the Examiner's rejection.

Claim rejections 35 U.S.C. §102 (b)

In the Office Action, the Examiner rejected Claims 1-4 under 35 U.S.C §102(b) as being anticipated by Connell *et al.,* U.K. Patent: 1,037,144 (hereinafter "Connell"). Applicants respectfully submit that the amendments to the claims overcome the Examiner's rejection.

Connell discloses a method of forming a polymer film on a substrate by producing a plasma resulting from a glow discharge in a vapor or one or more ethylenically unsaturated monomers.

Claim 1 of the present application has been amended to specify a pulsed plasma discharge having a duty cycle of between 1:500 and 1:1000. Support for this amendment can be found in the specification, Examples and originally filed claims that describe a ratio of power on:power off wherein the power is on for 20 μs and the power is off from 10,000 and 2000 μs (see original Claims 5 and 7, and at least page 6, lines 18-20 of the instant specification). Applicants respectfully submit that Connell fails to teach or suggest a pulsed plasma duty cycle and certainly fails to disclose a pulsed plasma discharge having the specified ratio.

For at least the foregoing, applicants respectfully submit that they have overcome the Examiner's rejection under 35 U.S.C. 102(b) and request withdrawal thereof.

In the Office Action, the Examiner rejected Claims 1-5 and 9-10 under 35 U.S.C §102(b) as being anticipated by Kolluri *et al.,* U.S. Patent 5,723,219 (hereinafter "Kolluri"). Claims 5 and 9-10 have been cancelled without prejudice, and Claims 2-4 depend either directly or indirectly from Claim 1. Applicants respectfully submit that the amendments presented herein obviate the Examiner's rejection.

Kolluri discloses plasma polymerization for production of three-dimensional functional film networks, utilizing epoxy-containing monomers such as glycidyl methacrylate. Applicants respectfully submit that Kolluri fails to teach or suggest a pulsed plasma duty cycle and certainly fails to disclose a pulsed plasma discharge having the specified ratio.

For at least the foregoing, applicants respectfully submit that they have overcome the Examiner's rejection under 35 U.S.C. 102(b) and request withdrawal thereof.

Claim rejections 35 U.S.C. §103 (a)

In the Office Action mailed January 12, 2005, the Examiner rejected Claims 5-7 and 9-12 under 35 U.S.C §103(a) as being unpatentable over Connell (described above) in view of Timmons *et al.* (U.S. 5,876,753 hereinafter "Timmons"). Claims 5 and 9-11 have been cancelled without prejudice. Claims 6-7 and 12 depend, directly or indirectly, from amended Claim 1. Applicants respectfully submit that the amendments to the claims overcome the Examiner's rejection.

As explained above, Connell fails to teach or suggest a pulsed plasma duty cycle. The deficiencies of Connell are not satisfied by Timmons for at least the following reasons.

Timmons fails to teach or suggest applicants' epoxy formula compounds. Furthermore, Timmons fails to teach the on-off time parameters and energy densities as claimed in the present application. Specifically, Timmons fails to teach a pulsed plasma discharge of duty cycle of between 1:500 and 1:1000 as claimed in amended Claim 1 and fails to teach an average power of the pulsed plasma discharge less than 0.05 W/cm^3 as claimed in Claim 6. Timmons actually teaches away from using very low pulsed plasma discharge duty cycles, as claimed in the present method, by stating that very low duty cycles result in the production of relatively unstable plasmas and exceptionally low deposition rates (see Example 9, column 20, lines 26-30, of Timmons).

Accordingly, applicants respectfully submit that Claims 6-7 and 12 are not anticipated nor rendered obvious by the teachings of Connell or Timmons, alone or in combination. For at least the foregoing, applicants respectfully submit that they have overcome the Examiner's rejection under 35 U.S.C. 103(a) and request withdrawal thereof.

In the Office Action, the Examiner rejected Claims 1-7 and 9-12 under 35 U.S.C §103(a) as being unpatentable over Timmons in view of Kolluri (both described above). Claims 5 and 9-11 have been cancelled without prejudice, and Claims 2-4, 6-7 and 12 depend, directly or indirectly, from amended Claim 1. Applicants respectfully submit the amendments to the claims obviate the Examiner's rejection.

As explained above, Timmons fails to teach or suggest applicants' epoxy formula compounds, the claimed energy densities and the claimed on-off time parameters, and Timmons teaches away from using very low duty cycles, as claimed in the present method.

The deficiencies of Timmons are not satisfied by Kolluri for at least the following reasons. Applicants respectfully submit that Kolluri fails to teach or suggest a pulsed plasma discharge of duty cycle of between 1:500 and 1:1000 as recited in amended Claim 1 and fails to teach an average power of the pulsed plasma discharge less than 0.05 W/cm^3 as claimed in Claim 6.

Accordingly, applicants respectfully submit that Claims 2-4, 6-7 and 12 are not anticipated nor rendered obvious by Timmons or Kolluri, either alone or in combination. For at least the foregoing, applicants respectfully submit that they have overcome the Examiner's rejection under 35 U.S.C. 103(a) and request withdrawal thereof.

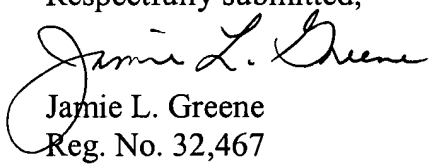
CONCLUSION

The foregoing is submitted as a full and complete Response to the Non-Final Office Action mailed on January 12, 2005. For at least the reasons given above, applicants respectfully submit that the pending claims are definite, enabled, novel and non-obvious. Accordingly, applicants submit that the claims are in condition for allowance, and such action is courteously solicited.

If the Examiner believes there are other issues that can be resolved by telephone interview, or that there are any informalities remaining in the application which may be corrected by Examiner's Amendment, a telephone call to the undersigned attorney at (404) 815-6500 is respectfully solicited.

No additional fees are believed due; however the Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account number 11-0855.

Respectfully submitted,



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